CLAIMS

1.(Twice Amended) A method of food product testing, such method including the steps of

taking a sample of a food product, the sample including at least one unprocessed

foodstuff for preparation of the food product, and preparing the food sample for assay of

genomic material [from] of a plurality of target species potentially present in the food product,

and

contacting the prepared food sample with an array of probes directed to multiple regions

of genomic material for each of a plurality of said target species

such that said material hybridizes at loci of said array, to simultaneously detect genomic

material from a plurality of said target species, and

forming an output distribution representative of the target species that are present in the

food sample , wherein the target species include species affecting quality or processing of the

food product such that the distribution enables effective adjustment of said processing.

2. (Once Amended) The method of claim 1, wherein the step of preparing includes the step of

culturing the food sample to increase populations of a plurality of the target species prior to

testing with the array of probes.

3.   The method of claim 2, wherein the step of preparing includes the steps of

extracting nucleic acid from target organisms, and

labeling and amplification of gene regions prior to detection with the probe array.

4.   The method of claim 3, wherein the step of labeling is performed after the step of

amplification.

5.   The method of claim 3, wherein the step of amplification is performed by automated

fluidics and incubation to produce output material for detection by said array.

6.   The method of claim 1, carried out by an automated sample preparation and array testing

system.

7. (Once Amended) The method of claim 6, further wherein a computer operates upon an output of an array reader to output said distribution, and including the steps of storing an output distribution in a database together with data regarding the food sample from which the distribution is derived, and operating a data mining program effective to correlate a detected distribution with stored database information.

8. (Once Amended) The method of claim 1, wherein the step of preparing the sample includes the steps of recovering a plurality of different microorganisms from the food sample, extracting DNA from the plural different microorganisms, and simultaneously amplifying plural target sequences present in the recovered DNA for each of said different microorganisms.

9. (Once Amended) The method of claim 1, further comprising the step of correlating the output distribution with a database wherein the database includes data of at least one type selected from among

    (i) other output distributions,

    (ii) parameters related to the source, condition or processing of food in the sample from which the ouput distribution was taken, and

    (iii) parameters related to the source, condition or processing of food in the sample from which other ouput distributions were taken.

10.   CANCELED

11.   CANCELED

12.   CANCELED

13.   CANCELED

14.(Twice Amended)   A testing method comprising the steps of

preparing an array having plurality of probes directed to target sequences of each of a defined plurality of different target species wherein the target species include species affecting quality or processing of a food product

preparing a sample of the food product wherein the step of preparing a sample includes extracting DNA from the sample, including sequences of the species present in the sample,.

treating the extracted DNA with a PCR protocol effective to preferentially and simultaneously increase the level of target DNA sequences of the defined plurality of different target species, and

hybridizing the amplified DNA to the probes on the array and forming an output distribution representative of the target species present in the sample such that the distribution enables effective adjustment of said processing.

15.   The testing method of claim 14, further comprising the steps of storing the output distribution in a database.

16.   The testing method of claim 15, further comprising the step of mining the database to determine a correlation of species with an extrinsic parameter.

17.   The testing method of claim 14, wherein the species are foodborne species affecting food safety or quality.

18. (Once Amended) The testing method of claim 14, wherein the target sequences include species sequences coding for factors involved in pathogenesis or virulence factors.

19.   The testing method of claim 14, wherein the target sequences are species sequences selected for efficient PCR amplification as a group.

20.   The testing method of claim 14, wherein the array tests for a pallette of species selected from among product colonizing species, environment colonizing species, and mammalian colonizing species.

21. (Once Amended) The testing method of claim 16, further comprising the step of displaying the distribution with a note describing adverse consequences or process warning indications associated with the detected distribution.

22.   CANCELED

23.   The testing method of claim 14, wherein the target sequences are species sequences selected for efficient probe hybridization and detection as a group.

24.   The testing method of claim 14, further including the steps of determining sensitivity and cross reactivity of the array.

25.   The testing method of claim 14, wherein the output distribution indicates amount of each target species present in the sample.